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STATE
OF
MONTANA
DIVISION OF FORENSIC SCIENCE
DEPARTMENT OF JUSTICE
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SHELVED WITH
PERIODICALS

JANUARY 1984

PLEASE RETURN

A SINCERE THANKS

To our SHERIFFS, POLICE, PATROL and FIREFIGHTERS for their support and understanding of our Division. A special thanks to the departments who made it possible for their officers to attend death investigation courses.

To our CORONERS interested in death investigation education and a salute to their Association promoting mandatory education.

To our COUNTY ATTORNEYS who consult with us, are patient with us, and and who have been courteous to our experts.

To our ASSOCIATE MEDICAL EXAMINERS, especially JOHN PFAFF and KEN MUELLER, who give so much of their time to education participation and consultation in medical-legal matters.

To our FORENSIC ANTHROPOLOGISTS at U of M, and DAVE JOHNSON, our FORENSIC DENTIST in Great Falls, for their unselfish contributions.

To the MLEA staff for their assistance in providing educational courses in Death Investigation and Criminal Evidence.

To ATTORNEY GENERAL MIKE GREELEY and the entire staff of the DEPARTMENT OF JUSTICE for their support, assistance and cooperation over the past growing years.

WELCOME

Richard Morehead joined the Toxicology Section this December. He hails from Southbend Medical Foundation in Indiana. He did toxicology there for four years.

CORONERS

Enclosed are the new Coroner Report Forms. If you need more forms please call Edna or Melodee at 728-4970.

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After the detective had taken a close-up photograph of the broken fingernail, a few hairs were removed from the bloodstained hand and placed into an evidence envelope.

"Well", said one officer. "If we just had a suspect we could prove those hairs came from him. We can tell female from male hair, can't we Doc?"

The pathologist had removed a new comb from the sexual assault kit and began to comb the pubic hair of the female corpse. "Give me another evidence envelope. I've got a few loose hairs here." As he pulled some hair from the body he added, "Sex can sometimes be determined by pulled hair. Pulled or plucked hairs have many additional features for a good comparison. The science of hair examination is very tedious and errors are easily made by the inexperienced."

QUESTIONS:

1) How long after death does hair grow?

2) How fast does hair grow (in inches per month)?

3) What chemicals in hair are useful to the crime lab?

4) Can human races and animals be differentiated by hair?

5) Are beard, armpit, chest and eyebrow hairs different microscopically?

6) Can a blood type be obtained from hair?

7) Can the sex of an individual be determined from hair?

8) Can an absolute identification be based on a hair identification?

JANUARY 1984
TRACE EVIDENCE
R. L. Rivers, M.D.

ANSWERS:

1. Hair stops growing the instant death occurs. As the skin dries and shrinks after death it often appears that the beard is growing. But nothing grows in the body after death except germs and maggots.

2. Hair grows on the average of one quarter to one half an inch a month or 0.3 - 0.5 mm a day.

3. Arsenic will concentrate in the hair (and fingernails) and can be found in lethal amounts years after death. In fact, since hair grows so slowly, if different sections are analyzed, one can tell when the poisoning began!

4. Based on cross-sections of hair and other characteristics, Caucasians, Blacks and Orientals can be differentiated. Human hair is easily distinguished from animal hair by forensic experts.

5. The body regions have distinct and identifiable hairs. However there are some overlapping characteristics.

6. Yes, but the results have been so erratic that the procedure is not good enough for the courts. Research is still going on this. Individual enzymes can also be found in hair root sheaths up to four weeks.

7. To determine sex, hair must be pulled and immediately placed in an alcohol-ether solution. Circumstances rarely occur in criminal cases where this is possible.

8. No, but an individual can be excluded based on a hair identification.